

REMARKS

Claims 1-11, 26, 28-30, and 32-39 are pending in the application. Claims 1, 8, 26, 30, 33, and 37 are independent. By the foregoing Amendment, claims 8, 33, and 37 have been amended and claims 40-43 have been canceled. These changes are believed to introduce no new matter and their entry is respectfully requested.

Rejection of Claims 1-2, 4, 26, and 29-30 Under 35 U.S.C. §103(a)

In paragraph 3 of the Office Action, the Examiner rejected claims 1-2, 4, 26, and 29-30 under 35 U.S.C. §103(a) as unpatentable over U.S. Patent No. 5,231,314 to Andrews (hereinafter “Andrews”) in view of U.S. Patent No. 6,310,571 B1 to Yang et al. (“hereinafter “Yang”).

To establish a *prima facie* case of obviousness, an Examiner must show three things: (1) that there is some suggestion or motivation to modify a reference or combine reference teachings to arrive at the claimed invention, (2) that there must be a reasonable expectation of success, and (3) that the references teach or suggest each and every element of the claimed invention. (MPEP §2143.) There are three possible sources for a motivation to combine references: (1) the nature of the problem to be solved, (2) the teachings of the prior art, and (3) the knowledge of persons of ordinary skill in the art. (MPEP §2143.01.) The mere fact that references can be combined does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. (MPEP §2143.01.) Applicant respectfully traverses the rejection.

Andrews appears to be directed to a programmable timing circuit for testing Joint Test Action Group (JTAG) Version 2.0 compliant integrated circuits (ICs). The problem addressed in Andrews is that there needs to be a programmable and controllable variable JTAG-compatible timing generator circuit formed directly on the IC being tested.

Yang appears to be directed to an analog-to-digital converter (ADC) for an image sensor or digital pixel sensor, which receives an analog input from a photodetector or photosensor and converts it to a digital signal. One problem addressed in Yang is that

although an image sensor that implements a shared-ADC architecture (e.g., one ADC shares several photodetectors) is better than dedicated ADCs for each photodetector, it is difficult to implement multiple sampling to an image sensor using a shared-ADC architecture because the introduced crosstalk makes the sampled photodetector values useless (col. 3, lines 17-30). The other problem addressed in Yang is that the shared-ADC architecture introduces noise and nonlinearities into the pixel values (col. 3, lines 31-38).

The Examiner asserts that it would have been obvious to modify Andrews' RAMP generator (reference voltage) and voltage comparator COMP (sense amplifier) to incorporate Yang's external RAMP generator and comparator 16a. The Examiner states that one would be motivated to make such a modification because it would save chip area and add more flexibility to Andrews' chip and so that Andrews would not be limited to a particular type of circuit for generating a RAMP signal.

Applicant respectfully disagrees with the Examiner and respectfully submits that the Examiner has provided no motivation to combine Andrews and Yang that is in keeping with the requirements of MPEP §2143.01. As such, the Examiner has not made out a *prima facie* case of obviousness using the combination of Andrews and Yang.

For example, Applicant respectfully submits that nowhere in Andrews is it suggested or taught that the nature of the problem to be solved is to "reduce cross talk between sampled photodetector values or to reduce noise and nonlinearities introduced into the pixel values." Similarly, Applicant respectfully submits that nowhere in Yang is it suggested or taught that the nature of the problem to be solved is to design "a programmable and controllable variable JTAG-compatible timing generator circuit directly on an integrated circuit." Thus, the Examiner cannot rely on the "*nature of the problem to be solved*" as a source for motivation to combine Andrews and Yang.

Applicant respectfully submits further that nowhere in Andrews or Yang is it suggested or taught that one might want to implement the teachings of Yang with the teachings of Andrews as appears to be asserted by the Examiner. To the contrary, Andrews

does not mention pixels, photodetectors, image sensors, or the like, and Yang does not mention JTAG devices, TAP ports, testing of integrated circuits or the like. Thus, the Examiner cannot rely on the “*teachings of the prior art*” as a source for motivation to combine Andrews and Yang.

Applicant respectfully submits that the Examiner has not provided any evidence of knowledge of persons of ordinary skill in the relevant art with respect to a source of motivation to combine Andrews with Yang. For example, the Examiner does not cite a reference or provide an affidavit showing the level of knowledge of persons of ordinary skill in the relevant art. Thus, the Examiner cannot rely on the “*knowledge of persons of ordinary skill in the relevant art*” as a source for motivation to combine Andrews and Yang.

Applicant respectfully submits further that contrary to the Examiner’s assertions, there are no teachings in Andrews that suggest that saving chip area, adding more flexibility, or having a variety of circuits for generating the RAMP signal. Instead, Andrews seems to be concerned with problems associated with testing of integrated circuits made unreliable due to inexperienced technicians, for example. These motivations the Examiner points to are not based on the nature of the problem to be solved, the teachings of the references, or the knowledge of persons of ordinary skill in the relevant art as required by MPEP §2143.01, but are mere statements. Applicant respectfully directs the Examiner to MPEP §2143.01, which points out that *a mere statement* that modifications to the cited reference would have been well within the ordinary skill of the art at the time the claimed invention was made *is insufficient* to support an obviousness rejection.

Because the Examiner has not met the requirements of MPEP §2143.01 to provide a legitimate motivation to combine Andrews with Yang, the Examiner has not made out a *prima facie* case of obviousness with respect to claims 1-2, 4, 26, and 29-30. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 1-2, 4, 26, and 29-30.

Rejection of Claims 3, 5-6, and 28 Under 35 U.S.C. §103(a)

In paragraph 4, the Examiner rejected claims 3, 5-6, and 28 under 35 U.S.C. §103(a) as unpatentable over Andrews in view Yang in further view of U.S. Patent No 6,085,345 to Taylor (hereinafter “Taylor”). Applicant respectfully traverses the rejection.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claims 1 and 26 using Andrews in view of Yang and because claims 3, 5-6, and 28 properly depend from claims 1 or 26, the Examiner has not made out a *prima facie* case of obviousness with respect to claims 3, 5-6, and 28 using Andrews in view of Yang in further view of Taylor. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 3, 5-6, and 28.

Rejection of Claims 7 and 40-43 Under 35 U.S.C. §103(a)

In paragraph 5, the Examiner rejected claims 7 and 40-43 under 35 U.S.C. §103(a) as unpatentable over Andrews in view of Taylor in further view of U.S. Patent No 6,477,674 to Bates et al. (hereinafter “Bates”) in further view of Yang. Applicant respectfully traverses the rejection.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 1 using Andrews in view of Yang and because claim 7 properly depends from claim 1, the Examiner has not made out a *prima facie* case of obviousness with respect to claim 7 using Andrews in view of Taylor in further view of Bates in further view of Yang. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 3, 5-6, and 28.

As for claims 40-43, Applicants have canceled claims 40-43. Such cancellation renders the rejection moot. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 40-43.

Rejection of Claims 8-11, 32-33, and 37-38 Under 35 U.S.C. §103(a)

In paragraph 7, the Examiner rejected claims 8-11, 32-33, and 37-38 under 35 U.S.C. §103(a) as unpatentable over Andrews in view of Taylor. Applicant respectfully traverses the rejection.

Claims 8, 33, and 37 recite in pertinent part “the set of voltage generators to *incrementally increase and/or decrease* the set of DC voltages *to determine* a set of trip points for the set of sense amplifiers, the set of *trip points being associated with a logical one* input voltage level *and/or a logical zero* input voltage level” (emphasis added). Support for these changes can be found in Applicant’s Specification at page 8, first paragraph and page 10, last full paragraph.

Applicant respectfully submits that Andrews in view of Taylor fails to teach at least these elements of the claimed invention. Applicant respectfully submits that this is because both Andrews and Taylor appear to be directed to testing the timing of an integrated circuit rather than testing input levels of an integrated circuit. Because Andrews in view of Taylor fails to teach at least these elements of claims 8, 33, and/or 37, Andrews in view of Taylor fails to teach each and every element of claims 8, 33, and/or 37 as required by MPEP §2143. Accordingly, Applicant respectfully submits that the Examiner has not made out a *prima facie* case of obviousness with respect to claims 8, 33, and 37 and requests that the Examiner reconsider and remove the rejection to claims 8, 33, and 37.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 8 using Andrews in view of Taylor and because claims 9-11 properly depend from claim 8, the Examiner has not made out a *prima facie* case of obviousness with respect to claims 9-11 using Andrews in view of Taylor. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claims 9-11.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 30 using Andrews in view of Yang and

because claim 32 properly depends from claim 30, the Examiner has not made out a *prima facie* case of obviousness with respect to claim 32 using Andrews in view of Taylor. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 32.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 37 using Andrews in view of Taylor and because claim 38 properly depends from claim 37, the Examiner has not made out a *prima facie* case of obviousness with respect to claim 38 using Andrews in view of Taylor. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 38.

Rejection of Claims 33-36 and 39 Under 35 U.S.C. §103(a)

In paragraph 8, the Examiner rejected claims 33-36 and 39 under 35 U.S.C. §103(a) as unpatentable over Andrews in view of Taylor in further view of Bates. Applicant respectfully traverses the rejection.

Claims 33 and 37 recite in pertinent part “the set of voltage generators to *incrementally increase and/or decrease* the set of DC voltages *to determine* a set of trip points for the set of sense amplifiers, the set of *trip points being associated with a logical one* input voltage level *and/or a logical zero* input voltage level” (emphasis added). Support for these changes can be found in Applicant’s Specification at page 8, first paragraph and page 10, last full paragraph.

Applicant respectfully submits that Andrews in view of Taylor in further view of Bates fails to teach at least these elements of the claimed invention. Applicant respectfully submits that this is because Andrews, Taylor, and Bates all appear to be directed to testing the timing of an integrated circuit rather than testing input levels of an integrated circuit. Because Andrews in view of Taylor in further view of Bates fails to teach at least these elements of claims 33 and/or 37, Andrews in view of Taylor in further view of Bates fails to teach each and every element of claims 33 and/or 37 as required by MPEP §2143.

Accordingly, Applicant respectfully submits that the Examiner has not made out a *prima facie* case of obviousness with respect to claims 33 and 37 and requests that the Examiner reconsider and remove the rejection to claims 33 and 37.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 33 using Andrews in view of Taylor in further view of Bates, and because claims 34-36 properly depend from claim 33, the Examiner has not made out a *prima facie* case of obviousness with respect to claims 34-36 using Andrews in view of Taylor in further view of Bates. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejections to claim 34-36.

Applicant respectfully submits that because the Examiner has not made out a *prima facie* case of obviousness with respect to claim 37 using Andrews in view of Taylor in further view of Bates, and because claim 39 properly depends from claim 37, the Examiner has not made out a *prima facie* case of obviousness with respect to claim 39 using Andrews in view of Taylor in further view of Bates. Accordingly, Applicant respectfully requests that the Examiner reconsider and remove the rejection to claim 39.

CONCLUSION

Applicant submits that all grounds for rejection have been properly traversed or rendered moot and that the application is now in condition for allowance. The Examiner is invited to telephone the undersigned representative if the Examiner believes that an interview might be useful for any reason.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Date: 11/23/04

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